BULLETIN
OF THE
TORREY BOTANICAL CLUB.

Vol. XIX.] New York, February 10, 1892. [No. 2.

Review of the North American Species of the Genus Xyris.

By Heinrich Ries.

Plate CXXIV.

While engaged in a study of this genus during the past winter, I found great confusion existing among the various species. The most complete list of the North American species thus far published is in Chapman's Flora of the Southern States; but even here the descriptions are hardly sufficiently accurate, and all the species cannot be maintained. It has therefore seemed to me desirable to present this revision of the genus, the arrangement of which is based on specimens in the herbarium at Harvard College, Agricultural Department at Washington, and those of Messrs. J. D. Smith, W. M. Canby, as well as the herbarium of Columbia College. The majority of the species are confined to the Southern States. The genus may be defined as follows:

Perennial, stemless herbs. Roots usually fibrous, sometimes bulbous. Leaves linear or linear-lanceolate, collected about the base of the naked scape. Scales convex, horny, thicker in the middle. Flowers single in the axils of the scales, which are collected into a more or less dense spike. Sepals three, the two lateral ones glumaceous and keeled, enclosing a third membranous one. Petals three, clawed. Stamens six, three of which are fertile and situated on the claws of the petals, the alternate ones being sterile. Anthers linear. Ovary one-celled, three-valved; the valves bearing the placenta along the middle. Stigma one, style three-cleft. The modifications of the keel of the lateral sepals form valuable specific characters.

A. Sheath of scape longer than the leaves.

1. XYRIS BREVIFOLIA, Michx.

X. brevifolia, Mich. Fl. Bor. Amer. i. 23 (1803).

Scape terete, smooth, occasionally spirally twisted and 4-12 inches high. Leaves linear, narrow, edges smooth, 1-3 inches long; spikes globose, light brown; scales usually lacerate on the outer margin, oblong; wingless keel of lateral sepals very slightly crenulate.

Florida.—Jacksonville, A. H. Curtiss, No. 3,000; St. Augustine, W. M. Canby, 1869; Tampa, J. D. Smith; Herb. Dr. Chapman; Indian River, Ed. Palmer, No. 576; Apalachicola, B. F. Saurman; Manatee, A. P. Garber, F. Cozzans, Dr. Bacon; De Land, G. D. Hulst (1891); Lloyd's, L. H. Lighthipe (1891); Lake Winnemissett, G. D. Hulst (1891).

2. XYRIS FLABELLIFORMIS, Chapm.

X. flabelliformis, Chapm. Fl. S. U. S. 498 (1860).

X. scirpoides, Chapm. Mss. in Herb. Col. Coll.

X. brevifolia, *β subcarinata*, Chapm. Mss. in Herb. Col. Coll.

Scapes slender, usually spirally twisted, 4-12 inches high, clustered; leaves linear-lanceolate to linear, short, spreading; spikes globose to oblong, few flowered; bracts light brown, angular, their margins entire; lateral sepals shortly cut-fringed on the wingless keel.

Florida.—Ex. Herb. S. T. Olney; Herb. Col. Coll.; Hibernia, W. M. Canby; Manatee Co., J. T. Rothrock; Jacksonville, A. H. Curtiss, No. 3,001.

B. Sheath of scape shorter than leaves.

* Narrowly winged keel of lateral sepals fringed with hairs.

3. XYRIS AMBIGUA, Beyr.

X. ambigua, Beyr. in Kunth, Enum. iv. 11 (1843).

X. stricta, Chapm. Fl. S. U. S. 498 (1860).

X. rhombipetala, Sauv. Fl. Cub. 160 (1868).

Scape rigid, slightly twisted, furrowed, two-edged above, 2-3 feet high; leaves linear-lanceolate, 6-12 inches long, smooth and shining; spikes ovate-lanceolate, oblong or cylindric, generally acute, sometimes obtuse, many-flowered; bracts convex, light brown; lateral sepals lanceolate, shining, the upper two-thirds of the narrowly winged keel fringed and tapering at both ends.

X. stricta, Chapm. is undoubtedly the same as *X. ambigua*. Dr. Chapman speaks of the leaves of the former as being rough-edged, while those of the latter are smooth. I am unable to find such a difference. Again the heads of *ambigua* are said to be oblong, ovate-lanceolate or acute, while those of *stricta* are oblong or cylindric. The heads of *ambigua* are often obtuse and cylindric, while those of *stricta* are sometimes acute. I can find no constant difference in the shape of the sepals.

In *X. rhombipetala*, Sauv. the shape of the sepal and whole form of the plant are the same as in *ambigua*.

North Carolina.—Wilmington, W. M. Canby.

South Carolina.—Society Hill, M. A. Curtis; Sumter Co. J. D. Smith.

Florida.—Apalachicola, A. H. Curtiss, No. 3,002; Walton Co., A. H. Curtiss, No. 16; Chapman.

Texas.—Wright, Herb. Harvard Coll.; Hempstead, E. Hall, No. 671; Hardin Co., G. C. Nealley (1884); Austin, F. Rugel.

4. XYRIS FLEXUOSA, Mühl.

X. jupicai, Michx. Fl. Bor. Amer. i. 23 (1803). ?

X. *flexuosa*, Mühl. Cat. 5 (1813).

X. bulbosa, Kunth, Enum. iv. 11. (1843).

X. scabra, Engelm. Mss. in Herb. Col. Coll.

Scape twisted, straight or spiral, two-edged above; root somewhat bulbous; leaves linear, twisted; spike globose, few flowered; lateral sepals linear, curved, fringed the whole length of the wingless keel.

New Hampshire.—Jefferson Highlands, T. G. White.

Connecticut.—Waterford, W. H. Leggett; New Haven, in Herb. Harv. Coll.

Rhode Island.—Providence, S. T. Olney.

Massachusetts.—Salem, J. W. Chickering, Jr.

New York.—Herkimer Co., J. A. Paine; Cold Spring, Long Island, H. Ries.

New Jersey.—A. Gray; Atlantic Co., C. F. Parker.

Pennsylvania.—Chester Co., in Herb. W. M. Canby (1865); C. W. Short (1842).

Delaware.—Newcastle, Herb. W. M. Canby.

Maryland.—Stockton, H. H. Rusby.

District of Columbia.—Washington, L. F. Ward; Holmead Swamp, G. Vasey.

North Carolina.—Wilmington, W. M. Canby.

Texas.—Henderson Co., J. D. Smith; Choctaw Agency, J. M. Bigelow; Hempstead, E. Hall, No. 673; Cypress City, G. Belt, No. 756, (1876); Tex. Flor. Exs. No. 186; Hardin Co., G. C. Nealley, (1884).

Arkansas.—Southwest Arkansas, F. L. Harvey, No. 133.

Illinois.—Mason Co., E. Hall; Dixon, G. Vasey.

Wisconsin.—Marquette Co., J. Townley.

** The winged keel of the lateral sepals toothed or fimbriate.

5. XYRIA MONTANA, n. sp.

Scape slender, 3-12 inches high, straight and twisted, two-edged above; roots fibrous; leaves linear, 2-6 inches long, spikes globose to ovoid, scales rounded, upper margin finely fimbriate, lateral sepals linear, the upper third of the winged keel irregularly serrate-fimbriate.

This plant has been called *X. flexuosa* var. *pusilla*, A. Gray, Man. Ed. 5, p. 548 (1868). The name *pusilla*, however, belongs to a previously discovered species from New Holland.—R. Br. Prodr. Fl. Aust. 256 (1810).

Small specimens of *X. flexuosa* have been erroneously referred to this.

Localities thus far known are:

Pocono Mt., Pa., Traill Green, T. C. Porter, 1876; Base of White Mts., A. Gray; Herkimer Co., N. Y., J. A. Paine; High Bogs, Westchester Co., N. Y., Hoysradt; Eagle Harbor, Keweenaw Co., Mich., Robbins; Leverett, Mass., H. G. Jesup; Pine Barrens of New Jersey, Torrey; Open Swamps, Akron, Ohio, C. Mohn; Salem, Mass., J. H. Sears; Quaker Bridge, N. J.

6. XYRIS ELLIOTTII, Chapm.

X. ELLIOTTII, Chapm. Fl. S. U. S. 498 (1860).

Scape slender, twisted, straight, two-edged throughout the greater part of its length; leaves linear, twisted, 2-8 inches long, the upper two-thirds of the leaf a darker shade of brown than the lower third, spikes ovate, scales lacerate on the upper margin, lateral sepals lanceolate, the winged keel incised-fimbriate.

Florida.—Jacksonville, A. H. Curtiss, No. 3105; Dr. Chapman, 1860; C. F. Powell; Miami, A. P. Garber, No. 287, 1877; Tampa, J. D. Smith; St. Augustine, Herb. Harv. Coll.; Apalachicola, B. F. Saurman, 1867.

7. XYRIS COMMUNIS, Kunth.

X. communis, Kunth, Enum. iv. 10. (1843).
X. difformis, Chapm. Fl. S. U. S., 500 (1860).
X. gymnoptera, Griseb. Cat. Pl. Cub. 223 (1866.)
X. partita, Chapm. Mss. in Herb. Col. Coll.

Scapes straight, twisted, two-edged above, one-angled below, leaves linear to linear-lanceolate, 4-12 inches long; spikes many-flowered, ovate or round; margin of scale usually smooth; lateral sepals lanceolate, the upper two-thirds of the winged keel fimbriate.

X. difformis, Chap., is the same as *X. communis*, Kunth, the sepals and whole appearance of the two plants being alike.

The comparisons of *communis* and *gymnoptera* with *difformis* were based on C. Wright, Cuba, No. 3734; Eggers, St. Domingo, No. 2101, det. by Dr. Urban, at Berlin; Sintenis, Porto Rico, 6764 and 934, det. by Urban, and Turckheim, Guatemala, No. 201, det. by J. D. Smith.

Maryland.—Salisbury, W. M. Canby.
South Carolina.—Aiken, H. W. Ravenel.
Florida—Dr. Chapman; Mayport, H. D. Keeler.
Louisiana.—Opelousa, G. W. Letterman.
Alabama.—Lee Co., J. D. Smith.

8. XYRIS SEROTINA, Chapm.

X. serotina, Chapm. Fl. S. U. S , 500 (1860).
X. fascicularis, Chapm. Mss. in Herb. Col. Coll.

Scape straight, twisted, striate, 2-edged above and 1-1½ feet high; leaves linear-lanceolate, surface papillose, wide, spikes ovoid or globose, scales rounded, lateral sepals linear, upper third of keel-wing incised-fimbriate.

Florida.—Apalachicola, A. W. Chapman, 1861.

There are some small specimens in the Columbia College Herbarium, collected by Dr. Hale in Louisiana. The leaves are 1-2 inches long; scape 3-5 inches high. The sepals are those of *serotina* and the leaves show the papillose surface, characteristic of *serotina*, near the base. They are probably young plants of this species.

9. XYRIS CAROLINIANA, Walt.

X. Caroliniana, Walt. Fl. Car. 69 (1788).
X. elata, Chapm. Fl. S. U. S. 501 (1860).
X. serotina, var. Chapm. Mss. in Herb. Col. Coll.
X. graminifolia, Chapm. Mss. in Herb. Col. Coll.

Scapes solitary or clustered, twisted and two-edged above, 1-2 feet high; leaves linear or linear-lanceolate, 4-15 inches long; spikes globose or ovate, or sometimes oblong; scales brown, becoming curled and the margin lacerated with age; lateral sepals linear, the upper third of the narrowly winged keel incised-serrate.

Forms found in New England agree with Dr. Chapman's type of *elata*, and if this species could be maintained would extend its range. This, however, seems doubtful, as forms intermediate between *Caroliniana* and *elata* exist, and show that the two pass into each other.

Massachusetts.—Uxbridge, J. W. Robbins, 1885; Waltham, T. Morong; Milton Co., W. Boott, 1871.

Rhode Island.—Cumberland, R. I. plants No 834, in Herb. Col. Coll.; East Greenwich, J. W. Congdon, 1878.

New York.—Pine Plains, Hoysradt; Long Island, Wading River, E. S. Miller, 1877.

New Jersey.—Pine barrens, A. Gray; Manchester, T. C. Porter; Forked River, N. L. Britton; J. Macnab, No. 183.

Delaware.—Sandy swamps, Herb. Col. Coll., 1861; Ellendale, 1874.

Maryland—Snow Hill and swamps E. Maryland, W. M. Canby; Stockton, H. H. Rusby.

North Carolina.—Henderson Co., J. D. Smith; Wilmington, in Herb. Harv. Coll.

South Carolina.—Greenville Co., J. D. Smith; Santee Canal, W. Ravenel; Society Hill, M. A. Curtis.

Florida.—Chapman; Tampa, A. P. Garber.

Alabama.—A. Winchell.

Louisiana.—Dr. Hale.

10. XYRIS IRIDIFOLIA, Chapm.

X. iridifolia, Chapm. Fl. S. U. S. 501 (1860).
X. rigida, Chapm. Mss. in Herb. Col. Coll.
X. conifera, Chapm. Mss. in Herb. Col. Coll.

Scape stout, straight, two-edged and flattened above, 1½–3

feet high; leaves broadly linear, with acuminate points, 1–2 feet long; spike oval or oblong, many-flowered; scale dark, margin entire, brown, thick, convex and becoming more so with age; lateral sepals rather short, linear, thin, the winged keel irregularly incised-fimbriate throughout its length.

Florida.—A. W. Chapman.
Alabama.—Buckley; Gadsden, G. R. Vasey.
South Carolina.—Santee Canal, Ravenel.
Texas.—Houston, E. Hall, No. 674; mouth of Brazos River, F. Lindheimer.

11. XYRIS PLATYLEPIS, Chapm.

X. platylepis, Chapm. Fl. S U. S. 501 (1860).

Scapes straight, twisted, two-edged above, 1½–3 feet high; leaves linear, lanceolate, pointed, somewhat twisted, 9–15 inches long; spikes cylindric or oval, obtuse or acute and often loosely flowered in the older specimens; scales orbicular, the lateral margins curling backward with age; lateral sepals long, narrow, the upper half of the narrowly winged keel serrate.

South Carolina.—Aiken, H. W. Ravenel, No. 4 and No. 3, 1866; Charleston, A. H. Curtiss.
Florida.—Jacksonville, A. H. Curtiss, No. 3011; Apalachicola, B. F. Saurman.

12. XYRIS FIMBRIATA, Ell.

X. fimbriata, Ell. Bot. S. Ca. and Ga. i. 51 (1816).

Scapes straight, twisted, two-edged above, 2–4 feet high; leaves long, broadly linear, with acuminate point, 1–2 feet long; spikes cylindric or globose, many-flowered; scales wider above the middle, margin entire; lateral sepals somewhat long, linear, long-fimbriate above the middle.

New Jersey.—Quaker Bridge, C. F. Parker, 1866; Atsion, C. F. Parker; Pine barrens, J. D. Smith.
South Carolina.—Society Hill, M. A. Curtis.
Florida.—J. H. Simpson.
Virginia.—Dismal Swamp, T. Morong.
Alabama.—Mobile, C. Mohr.
Mississippi.—Mississippi City, J. D. Smith.

13. XYRIS TORTA, Smith.

X. torta, Smith, in Rees Encycl. (1819).
X. conocephala, Sauv. Fl. Cub. 159 (1868).

Scapes spirally twisted, 1–2 feet high, one-edged; roots bulbous, shining; leaves linear, twisted, 6–15 inches long; spikes cylindric, pointed; scales light brown, twice as long as wide, the apex serrulate; lateral sepals long, linear, exserted, the upper portion of the keel-wing short-fimbriate.

New Jersey.—Quaker Bridge, D. C. Eaton, 1860.

North Carolina.—G. McCarthy, No. 12½.

South Carolina.—Florence, J. D. Smith, No. 233; Society Hill, M. A. Curtis.

Georgia.—Columbus, J. D. Smith, 1883.

Florida.—Mayport, H. D. Keeler; Key West, Blodgett; Apalachicola, B. F. Saurman; Tampa, A. P. Garber, No. 20, 1876, white flowers; Jacksonville, A. H. Curtiss, No. 3013.

Louisiana.—Dr. Gates.

Texas.—Hempstead, E. Hall.

* * *Leaves filiform.

14. XYRIS BALDWINIANA, R. & S.

X. Baldwiniana, R. & S. Mant. i. 351 (1822).

X. tenuifolia, Chapm. Fl. S. U. S. 502 (1860).

X. setacea, Chapm. Fl. S. U. S. 500 (1866).

X. juncea, Baldw. in Ell. Bot. S. C. i. 53 (1816) not R.Br.

X. stenophylla, Chapm. Mss. in Herb. Col. Coll.

Scape slender, straight and twisted, 6–15 inches high; leaves filiform, hollow, 4–8 inches long, twisted and acute; spikes globose or oval; scales round, outer margin usually lacerate; lateral sepals linear, the upper half of keel-wing serrate.

South Carolina.—Society Hill, M. A. Curtis, 1852.

Florida.—Walton Co., A. H. Curtiss, No. 3015; Apalachicola, B. F. Saurman, 1867; Indian River, E. Palmer, No. 577.

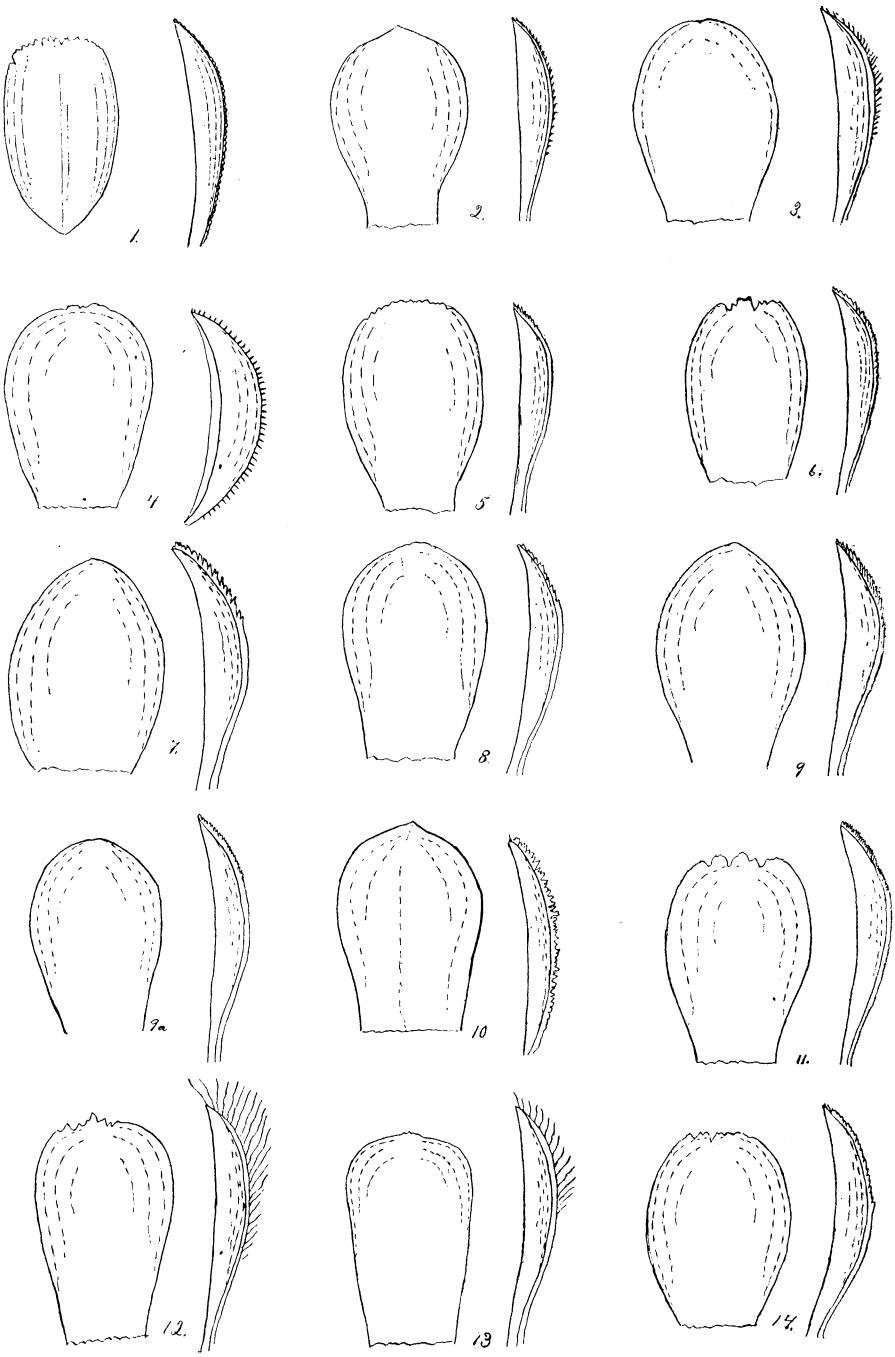
Louisiana.—Dr. Hale.

Alabama.—Mobile, C. Mohr.

Texas.—Hempstead, E. Hall, No. 672; Hardin Co., G. C. Nealley, June 1884.

DESCRIPTION OF PLATE CXXV.

1. *X. brevifolia*, Michx. Scale × 7. Sepal × 9
2. *X. flabelliformis*, Chapm. Scale × 9. Sepal × 9.
3. *X. ambigua*, Beyr. Scale × 3. Sepal × 4.
4. *X. flexuosa*, Mühl. Scale × 5. Sepal × 6.
5. *X. montana*, n. sp. Scale × 7. Sepal × 7.
6. *X. Elliottii*, Chapm. Scale × 5. Sepal × 6.
7. *X. communis*, Kunth. Scale × 6. Sepal × 9.



SCALES AND LATERAL SEPALS OF XYRIS. Heinrich Ries.

8. *X. serotina*, Chapm. Scale × 6. Sepal × 6.
9. *X. Caroliniana*, Walt. Scale × 6. Sepal × 5.
9a. *X. elata*, Chapm. Sepal × 10. Scale × 9.
10. *X. iridifolia*, Chapm. Scale × 5. Sepal × 6.
11. *X. platylepis*, Chapm. Scale × 5. Sepal × 7.
12. *X. fimbriata*, Ell. Scale × 5. Sepal × 6.
13. *X. torta*, Smith. Scale × 3. Sepal × 3.
14. *X. Baldwiniana*, R. & S. Scale × 6. Sepal × 8.

Eastern and Western Weeds.*

By Byron D. Halsted.

The following remarks are founded upon the reports of a large number of botanists and crop growers throughout the United States, received in response to letters sent to them or questions asked through the public press. Having lived for four years in Iowa and being now a resident of New Jersey, the weeds of these two States have received personal consideration, and therefore these widely separated States will furnish a basis for a comparison of the weeds of the East and the West, not being unmindful of the fact that Iowa represents the central part of our continent, while the West, strictly speaking, reaches beyond the Sierras.

An elaborate list of the weeds of Iowa was published in a bulletin from the Agricultural College in 1888. In this catalogue 297 species were enumerated and classified as follows.

	Annuals.	Biennials.	Perennials.	Total.
Worst Weeds	28	6	17	51
Bad Weeds	34	12	48	94
Indifferent Weeds	22	9	121	152
Total	84	27	186	297

In passing from the worst weeds through the middle class to the indifferent the percentage of perennials rapidly increases.

The eighty-seven foreign species are tabulated as follows:

	Worst.	Bad.	Indifferent.	Total.
Annuals	18	19	7	44
Biennials	3	6	3	12
Perennials	7	12	12	31
Total	28	37	22	87

* Read before the S. P. A. S., Washington, D. C., August 19th, 1891.